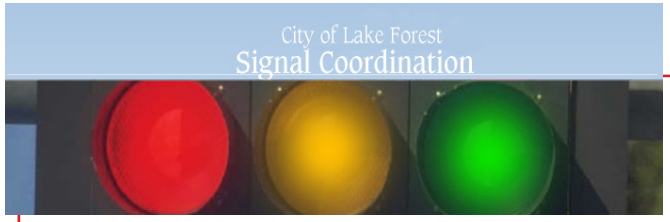


Traffic Signal Synchronization in Lake Forest

Traffic Signal Synchronization Project-Phase 1 (Complete): Phase 1 of the City's Traffic Signal Synchronization project (TSSP) replaced 62 outdated traffic signal controllers and upgraded software for an additional 20 signal controllers. The project was completed on April 1, 2012.

Traffic Signal Synchronization Project (TSSP) - Phase 2 (Complete): Phase 2 of the City's TSSP project re-timed 73 intersections throughout the City , as well as established new corridor timing plans for major arterials. The traffic signal timing plans were developed with the help of traffic data that was collected at signalized intersections. Data collection for the traffic signal re-timing report is complete. New timings were implemented, reviewed, and are being modified as necessary. The final report has been reviewed and the project was completed on April 1, 2012.

WORKING WITH OCTA

The City is working with the Orange County Transportation Authority as well as the cities of Irvine, Mission Viejo, Laguna Hills, and Rancho Santa Margarita on eight (8) signal synchronization projects across multi-jurisdictional boundaries. The projects will promote traffic circulation throughout the region and include the following corridors:

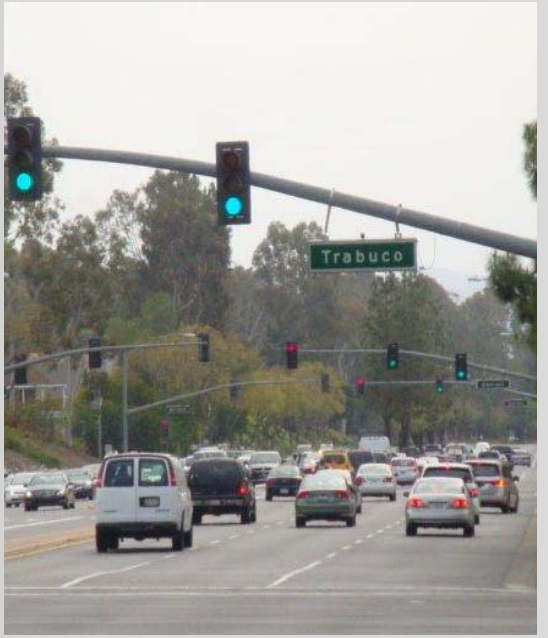
- Lake Forest Drive
- Los Alisos Boulevard
- Santa Margarita Parkway
- Bake Parkway
- Trabuco Road
- Jeronimo Road
- Barrance Parkway / Muirlands Boulevard
- Alton Parkway

City of Lake Forest
25550 Commecentre Dr.
Lake Forest, CA 92630
www.lakeforestca.gov

Public Works Department: 949-461-3480
Traffic Management
Doug Anderson, Traffic Manager
Doanderson@lakeforestca.gov

**25550 Commercentre Dr.
Lake Forest, CA 92630
(949) 461-3400
www.lakeforestca.gov**

Traffic Signal Synchronization



Traffic Signal Synchronization is a method of timing groups of traffic signals along an arterial to provide for smooth movement of traffic with minimal stops, thereby reducing delays which result in a better flow of traffic and minimizes gas consumption and pollutant emissions.

Synchronization in the City of Lake Forest

Why is Traffic Signal Synchronization Needed? The goal of synchronization is to get the greatest number of vehicles through the intersection with the fewest stops. It would be ideal if every vehicle entering the system could proceed through the intersection without stopping. This is not possible even in a well-spaced, well-designed system.

Therefore, in developing signal timing for traffic coordination, generally, "the majority rules" and the busiest traffic movements are given priority. Depending on a route, when the system is in coordination, the master cycle length of an arterial is generally between 60 to 140 seconds. This means that if you were exiting a side street, and you just missed the light, it is possible to wait between 60 and 140 seconds before receiving another green light. Typically, the busier the arterial, the longer the required cycle length.

Many drivers ask why they have to wait so long for a signal to change. Many of these drivers are waiting to enter a major arterial from a side street. This is even more frustrating when no traffic can be seen on the arterial. To allow the coordination of the arterial, the side street must wait until the main traffic movement on the arterial has gone through the intersection. It is possible that the arterial traffic can't be seen immediately, but will soon be passing through the intersection.

How does Traffic Signal Synchronization Work?

The way traffic signal synchronization works is by calculating the arrival time for a group of vehicles at each intersection traveling at a specified speed, and then the traffic signals are strategically timed to turn green just as the group of vehicles arrive at each intersection.

In order for the traffic signals to be synchronized, a group of signals must all be set to run on the same cycle length (the amount of time it takes for the signal to go from green to yellow to red; and back to green again)—after the cross street has been served.

Where does the City Implement Traffic Signal Synchronization?

While traffic signal synchronization improves traffic flows, its benefits are more pronounced under certain conditions. Not all City streets warrant coordination. Typically, a street is selected for synchronization if it carries a higher amount of traffic along the arterial during peak hours. At this time, signals are interconnected and actively coordinated on the following segments of streets in the major direction of flow generally between 6:45 a.m. to 9:00 a.m. and 3:45 p.m. to 6:00 p.m.

- Lake Forest Drive—Portola Parkway to I-5
- Trabuco Road-Paseo Sombra to Lake Forest Drive
- Bake Parkway-Portola to I-5 working in conjunction with the City of Irvine
- Portola Parkway-Alton Parkway to SR 241
- El Toro Road-Trabuco Road to I-5 (coordinated from 6:00 a.m. to 7:00 p.m.)

Other signals in the City operate on a "first-come- first-served" or traffic activated basis outside of these hours.

Reduction in Travel Times	Time Period	
Arterials	AM	PM
Bake Parkway	32%	33%
Lake Forest Drive	13%	20%
Trabuco Road	36%	24%
Portola Parkway	17%	16%
El Toro Road	21%	24%

Reduction in Number of Stops	Time Period	
Arterials	AM	PM
Bake Parkway	75%	59%
Lake Forest Drive	35%	45%
Trabuco Road	80%	33%
Portola Parkway	41%	15%
El Toro Road	36%	39%